315 of the ground below the surface of Bahrain, believed that oil was present
471 in the islands in commercial quantities and so obtained from the Ruler, on December 2nd, 1925, a prospecting concession which was to run for two years. During this period Holmes tried to interest British oil companies in the petroleum possibilities of Bahrain, but their experts declared that there was no oil in Bahrain and that it would be a poor gamble to start operations in that country. Finally Major Holmes went to the States and on November 30th, 1927, an American corporation, the Eastern Gulf Company, acquired a two years option. After negotiations which involved the Foreign Office and the State Department, for Bahrain was a protected State, and after discussions between various important oil interests, the Eastern Gulf Company assigned its option over the Bahrain concession to the Standard Oil Company of California. On August 1st, 1930 the concession was assigned by Standard Oil to its fully owned subsidiary, the Bahrain Petroleum Company Ltd. (BAPCO), which was registered in Canada in order to give it the status of a British company. Such are the politics of oil that it had taken five years for an oil company to be formed to develop Bahrain's oil, and had it not been for the enterprise of an American company, which took up the concession after it had been refused by the British, the oil of Bahrain might never have been exploited.

315 Directly the concession was signed, surveying and drilling operations
382 were commenced and in 1932 the first well "came in." This well can be seen immediately south of Awali and is still producing. By 1935 there were sixteen producing wells and six more drilling. It was then decided that the crude oil should be processed in Bahrain, and in the following year the first small distillation unit was erected and put into operation. A year later the capacity of the refinery was expanded to 25,000 barrels a day. The refinery was continually enlarged and improved so that finally it was able to process more crude than was forthcoming from the Bahrain field. A 12" pipeline was therefore laid from the Dammam field on the coast of Saudi Arabia to the refinery, a distance of 34 miles, of which 17 were under the sea, making it the longest private pipeline of its kind in the world. Having expanded the refinery it became necessary to improve the shipping facilities to speed the export of oil products so a three mile jetty was constructed from Sitra Island to the deep water, at the head of which a four berth pier was built to add to the existing two-berth island loading wharf. Rows of pipes carry crude oil and refined products to the waiting ships while huge freight trailers carry drums for bulk package loading. Each month 70-80 ocean vessels are alongside the wharves removing some 4½ million barrels of bulk exports and 60,000 drums of refined products and asphalt. The drums are made in the Sitra drum plant, manned entirely by Bahrainis.

At present the activities of the company are carried out in four parts of Bahrain, at Awali, at the Jebal, at the Refinery and on Sitra Island.

At Awali are the offices and the homes of the European employees of BAPCO, while outside the fence is the Arab camp for the few Bahrainis who prefer to live there rather than in their own towns and villages. Near Awali's eastern gate is the Training School for Bahrainis, where something is done to equip them for higher posts in the company. This is a field of activity which the company is beginning to develop and it is very important that is should succeed.

South of Awali, in the desert around the Jebal ad-Dukhan, is the oil field, the *raison d'etre* of BAPCO, an unimpressive area with many little squares of cement decorated with taps and valves and surrounded by low fences, which are the oil wells, while here and there derricks mark the search for more oil which is always in progress.

After the Abadan Refinery the one on Bahrain is the largest in the Middle East and supplies large quantities of refined products to India, Pakistan, East Africa and other countries "East of Suez." During the day it would be difficult to describe the refinery as anything but a large and ugly mass of iron and steel, with the great Cat. Cracker rising above the squat silver tanks. The air is hot and dusty and in the summer the iron-work is so hot that to touch it raises blisters ; but in the evening the refinery takes on the appearance of a slightly shapeless but nevertheless well decorated Christmas Tree, covered in lights and set against a background of flares of burning gas which illuminate the sky like a lurid orange back-cloth.

The Sitra anchorage has at all times an appearance of feverish activity, it is being improved so that it will be possible to load ships and tankers round the clock. In order to do this the jetty is being floodlit with great arc lamps.

On low-lying Sitra Island all that can be seen from the sea are the storage tanks, it is only on approaching nearer that the island itself becomes visible. The Tank Farm spreads across the middle of Sitra, and as it expands it threatens to cut the island in two. To the south of the Tank Farm is a large group of buildings from which a crashing sound is continually heard ; this is the Drum Plant. Further evidence of this is present in the thousands of newly painted drums that are piled in huge rows near the plant.

The oil industry is directed from the main office in Awali, where from air-conditioned coolness in the summer and air-conditioned warmth in the winter instructions go out to all parts of Bahrain where BAPCO has its installations. Bahrain is well situated for an oil industry. The oil wells are about eight miles from the Refinery, which itself is scarcely more than half that distance from the Pier and Tank Farm, while from Awali it is possible to see on a clear day both the Refinery and the Field. The radio-telephone and the aeroplane used in other Middle Eastern fields have no place in Bahrain where phones and cars are quite sufficent.

Of the 7,749 workers employed by BAPCO at the end of 1951, 4,937 were Bahrainis and 1,035 were British, American and other

Europeans. For the latter the company provides many amenities. In the town of Awali there is a cinema, a club and other recreational facilities. There is a Commissary for the supply of foods and goods unobtainable elsewhere in Bahrain; a school for American and European children with qualified teachers and hospitals for the various nationalities employed by BAPCO. A cinema, swimming bath and mosque are also being constructed in the Arab Camp, and a swimming bath and cinema in the Indian and Pakistani camp at Rifaa. The company also maintains dispensaries in some of the villages and has built three schools for the Bahrain Government. There is cordial co-operation between the Bahrain Government and BAPCO in all fields of social service and although it may seem strange that an oil company should be encouraged to occupy itself with so many activities not directly connected with the production of oil, yet it is now recognised in the Middle East that it is an obligation of oil companies not only to work for their shareholders but also for the benefit of the people of the country from which they derive their profits.

In 1940 a Supplementary Agreement was signed between the Ruler and the Bahrain Petroleum Company in which the latter received an extension to its concession including all lands, shoals, reefs, waters and submerged lands of "the present and future domains" of the Ruler of Bahrain.

It is a comparatively rare thing for people visiting Bahrain to see the actual oil which has made the Islands famous, gone are the days when to "strike oil" meant that a huge gusher of oil would leap skywards covering everything about it with what is termed, in the hackneyed phrase of the journalist, "black gold." Today the drilling of a well is normally a tidy process ; when oil is struck the drillers have complete control over its flow and quickly cap the well with a "Christmas Tree," the nickname for the mass of taps and valves which are placed over the well head. From the well the oil is piped to the Refinery and then to the storage tanks at Sitra. But in every part of its processing little is seen of the oil except by the workers in the laboratories.

The oil industry today is the most important factor in Bahrain's economy and is recognised as such by the Government and the people of the country.

CHAPTER VI

JEWELS OF THE DEEP

Pearl diving is probably the oldest industry in Bahrain and has been the reason why an otherwise small and comparatively unproductive group of islands has been the scene of so many bitter wars and has been over-run by so many invading armies. From earliest times Bahrain has been famous for its pearls ; in an Assyrian inscription of some 2000 B.C. a parcel of "fish eyes" from Dilmun is believed to be

to the days when the Rulers of Bahrain lived here and ruled the Islands from the castle. Below the fortresss is the spring of Hanani, whose water is the best in Bahrain, and a plain where, in the rainy season, a small lake forms and on disappearing leaves in its place a bright lawn of grass. Rifaa has been expanding rapidly during recent years, the town is spreading to the south-east, and it now possesses boys' and girls' schools and a Municipality. Some members of the Ruling Family still live in the town which has expanded owing to the development of the oil industry, in which some 500 of its male inhabitants are working.

The situation of the town is ideal for strategical purposes, from it it is possible to see Manama, Muharraq and Sitra while the land around it is free of vegetation which could have served to hide the enemy. It has an excellent climate and is drier than Manama in the summer. To the north of the town are two small graves where members of the Khalifah family are buried; these fell in battle during a civil war which took place in the 19th century.

There is a tradition connected with the fortress of Rifaa. It is said to have been built in the 17th century by the Wazir of the then Ruler, a certain Shaikh Jabbara. For years the Ruler and his wazir worked together, but one day the Shaikh was told about the beauty of the wazir's wife, and he desired her. He was tricked into believing that he had visited her, though in fact he was entertained by her maid-servant. He was so angry at the deception, about which the wazir knew nothing, that he killed him. The Wazir's widow thereupon fled from Rifaa to the mainland, from where she wrote to the Shah of Persia sending him a minature palm tree of pearls and gold and saying that so rich was Bahrain that such a tree was given to a child as a toy. She succeeded in exciting the avarice of the Persian Shah, who sent an army to Bahrain, defeated and killed Shaikh Jabbara, and annexed the Islands to Persia, thus avenging the Wazir's wife. This same Shaikh Jabbara is said to have lived in the fort of Arad, south-east of the Jebel, which is mentioned in Chapter VIII.

There is a third Rifaa, a small community built by BAPCO for its Indian and Pakstani employees; this is mentioned in the Chapter on Bahrain's Oil.

AWALI

Meaning "The High Places," this name was given by Shaikh Hamed, the late Ruler of Bahrain, to the oil camp when it was first established in its present location. Before the oil company arrived in Bahrain the site was deserted—for who would live in the middle of a waterless desert? But the company wanted to build their town near the oil field, and so the small, 240 foot, hill was chosen. Today Awali somewhat resembles a London surburb or a small American town. As in London, varied gardens and different coloured exteriors of the houses serve to disguise their basic similarity. In these gardens children play while their mothers chat to each other over the fences. Happy

1: Belgrave F-3 (no date) 1953 . MZ2 Bahrain MZ2

laughter comes from the Club House Swimming Bath and in the evenings sports of all kinds take place inside the camp. Today Awali is a town of some 400 houses inhabited by 2,000 Europeans and Americans. Shady trees line the roads and in fact there is little to suggest the presence of oil. The roads are surfaced with it, but otherwise it is not visible, though oil is the *raison d'etre* of this town set in such an inhospitable situation, to which water has to be piped from miles away and where to plant a tree a pneumatic drill is required to pierce the rock on which the town is built.

SAKHIR

Driving from Awali to Zellaq the traveller will notice a group of large buildings on the south of the road near the foot of the Jebal. This is Sakhir, founded by Shaikh Muhammad bin Khalifa (1843-67, d. 1890), but the majority of buildings which exist today were built by the late Ruler of Bahrain. The present Ruler makes little use of Sakhir, and the attractive mosques, balconied dwelling houses and high roofed rooms are now deserted ; the only human beings who remain are the Bedouin in charge of the horses and camels which are still kept there. The climate of Sakhir is excellent and in the spring there are fields of grass which provide grazing both for domestic animals, gazelle and hare. When Sakhir was occupied Saluqis were much in evidence, Shaikh Hamed was a great lover of this fine breed of dogs and his favourite hound, Housha, followed him wherever he went. It should be remembered that Sakhir is the private property of the Ruler, from whom permission must be obtained before it is visited.

JEBAL AD-DUKHAN

The "Mountain" of Bahrain has already been mentioned in the Introduction, but it deserves further notice. From its peak, which is marked by a trigonometry marker, it is possible to see, on a clear day, the entire area of Bahrain from Manama and Muharraq on the north to Ras al-Barr, while on the east and west the sea is even nearer. From the peak an excellent bird's eye view of Awali can be seen, and, at night, the flares at Dhahran and at Dukhan in Qatar are visible. The strange formation of the island, with the rim-rock and the central depression can be seen from the Jebal. At the head of a wadi facing towards Awali is the Jebal cave, some 15 × 35 × 6 ft., which is hollowed out of the rock, probably by water erosion for the fantastic patterns on the walls would seem to point to nature's rather than man's handiwork.

JAW AND DOUR (DAR AL-MANADIL)

On the east coast of Bahrain about a mile south of the highest peak of the Jebal are the villages of Dour and Jaw, similar in character and appearance and the southernmost inhabited villages on the east coast of Bahrain. The villages are about a mile apart and both are on the shore, they consist of a poor type of stone and gypsum hut inhabited

1: Belgrave F-3 (no date) 1953 MZ2 Bahrain MZ2

382

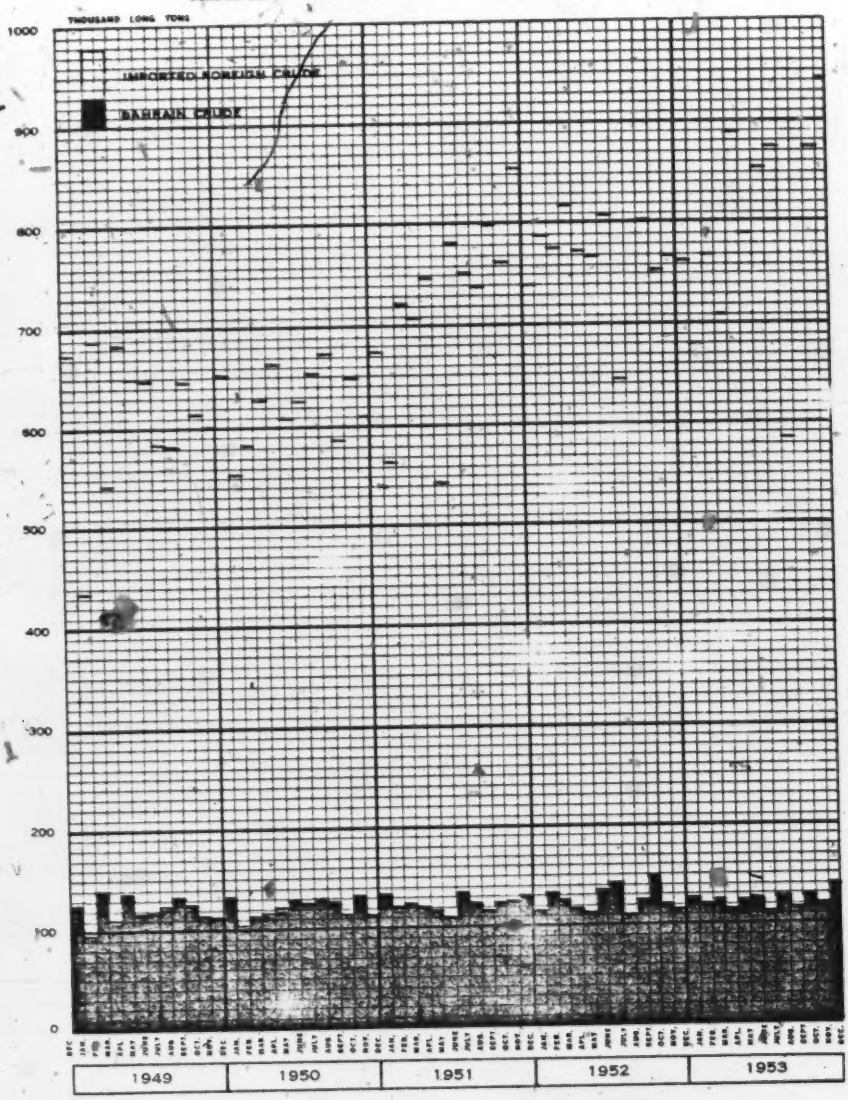
The Refinery. Photo : Bahrain Petroleum Company.

529

Qasari Pool. Photo : Sir Charles Belgrave.

439
382

REFINERY THROUGHPUT. BAHRAIN 1949-1953.



[facing page 50 a]

CASH RECEIPTS RETURN—1372

		Rs.	As.
TRANSFER FEES	.. ..	686	—
TAXATION FEES	.. ..	89,606	1
NUMBER PLATES	.. ..	2,397	—
LICENCE HOLDERS	.. ..	663	8
DRIVING LICENCES	.. ..	14,525	—
LICENCE BOOKS	.. ..	1,922	—
TAXI BADGES	.. ..	75	—
DRIVING TESTS—Fees	.. ..	6,650	—
LICENCE LATE FEES	.. ..	335	8
PEDAL CYCLE TAX	.. ..	1,697	—
HIRE OF "L" PLATES	.. ..	99	—
LEARNERS LICENCE PERMITS	.. .. ..	1,063	8
REGISTRATION LATE FEES	.. ..	2,312	—
REGISTRATION INFORMATIO	.. .. ..	3	—
PUBLIC CONVEYANCE LICENCE	.. .. ..	865	—
TAXI DRIVERS LICENCES	.. ..	853	8
TRADERS LICENCES	.. ..	2,175	—
	Total	Rs. 1,25,929	1

OIL INSPECTION DEPARTMENT

(Report by Mr. G. B. Thompson, Government Oil Inspector)

The Refinery throughput of Bahrain Crude Oil remained about the same as the previous year, but the total Refinery throughput, including both Bahrain Crude Oil and Imported Foreign Crude Oil, increased from 9,254,140 Long Tons in 1952, to a figure of 9,634,390 Long Tons in 1953. The actual figures being :

Bahrain Crude Oil	.. ..	1,480,638 Long Tons
Imported Foreign Crude Oil	..	8,173,751 Long Tons

There was a slight drop in the number of ship cargo inspections carried out :

1952	..	178 Ships, 476 Parcels, 1,741,861 Long Tons
1953	..	170 Ships, 463 Parcels, 1,628,045 Long Tons

The term "Imported Foreign Crude Oil" has been used in place of the term "Arabian Crude Oil," used in previous years, the change having been made to allow inclusion of two shipments of Sumatran Crude made late in 1953, which were successfully processed through the Refinery.

Graphs showing the Refinery throughput and the Ship Inspection figures for the last five years are included. *

In 1944 U. S. imports from Bahrein amounted to $30,859, most of which was classified in Group 9 (Miscellaneous) by the Department of Commerce. Of the total imports the New York Customs District received $27,551, or almost 90%. The total of the exports to Bahrein from the United States in the same year was $12,369,647, of which lend-lease materials accounted for $293,786.

The following table shows the principal articles which Bahrein imported from the United States for the year 1944.

Table 7. IMPORTS FROM UNITED STATES—1944

Item	Value (in U.S. Dollars)
Animals and Animal products	323,846
Vegetables and Vegetable beverages	320,318
Vegetable products (except Wood and Fibers)	155,188
Textile fibers and manufactures	104,808
Non-metallic minerals	545,221
Metals and manufactures (except Machinery)	3,823,521
Machinery and Vehicles (Electric pumps, Engines)	5,434,105
Chemicals and Related products	1,023,226
Miscellaneous	188,129

OIL

The oil concession on Bahrein Island is held by the Bahrein Petroleum Company, which is Canadian registered but owned by American companies, 50% by Standard Oil of California and 50% by The Texas Company.[1]

After a geological survey the company began drilling in 1931 in the Jabal Dukhān region, and oil was discovered in June 1932 at a depth of 2,009 feet.

By 1935 there were sixteen producing wells and six more drilling. At that time more than 10,000 acres had been proved oil bearing and potential production was estimated at 20,000

1. For a detailed account of the history of oil development in the Persian Gulf, see History, p. 103.

6:Faroughy H-5 (no date)1951 MZ2 Bahrain MZ2

382

barrels a day. At present there are sixty-seven producing wells each with an average output of 432 barrels a day.[1] Previously, in February 1932, the company had started the construction of a marine loading terminal with three miles (19,000 feet) of twelve inch pipeline leading from the small island of Sitra out into the harbor.

On the same island, construction was also begun on three crude-oil working tanks with floating roofs, with a capacity of 250,000 barrels, and on 7,500 barrel tanks for ships ballast water. At present, thirteen oil lines varying in size from six to eighteen inches connect the shipping tank farm on Sitra Island to a deep-water pier. Recently a new four-berth wharf situated in six to seven fathoms of water was added to the original two-berth island wharf and connected to the shore by a two-way-lane causeway and trestle. Using both wharfs, six tankers can be accommodated at one time, with a possible loading rate of about 5,000 barrels per hour.

In November 1934 Standard Oil announced the erection of a refinery to the terminal requiring a fill, or trestle, 1200 feet long. A drawbridge was built across the channel between Sitra and Bahrein, and the refinery went into operation in July 1935.

The yearly production of crude oil increased from 902 barrels in 1932 to 1,264,807 in 1935, more than 7,309,135 in 1945 and 8,009,925 in 1946.[2] Production of crude oil for 1947 amounted to 9,410,710 barrels, an all time high, bringing the cumulative total of oil produced through 1947 to 87,965,025 barrels. The 1949 production amounted to 10,985,484 barrels.[3]

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1. Compare with 440,000 oil wells in the United States averaging 11.5 barrels a day each.

2. Oil production of Near Eastern countries (in thousands of barrels), according to the *World Oil Atlas*, June 1947, was as follows:

Country	1944	1945	1946
Bahrein	7,000	7,308	8,009
Saudi Arabia	9,000	21,310	60,340
Iran	102,000	127,407	144,890
Iraq	29,000	31,349	32,777
U. S. production	1,678,000	1,712,000	1,732,000

3. One barrel = 42 U. S. gallons.

6:Faroughy H-5 (no date)1951 MZ2 Bahrain MZ2

382 The Bahrein refinery had been conducted for several years in a balanced crude oil distillation, thermal cracking and refinery operation. Because of the strategic location of the fields, the Petroleum Administration for War recommended in 1942 the erection of a 5800 barrel aviation gasoline plant on Bahrein. In April 1943, the American-British Petroleum Board approved an expansion program which included the building of a new crude distillation unit to raise the total crude intake capacity of the refinery by 33,500 barrels a day. The building of a reformer and additional tankage were authorized in December 1943, to provide an additional 700 barrels a day of aviation gasoline and increased production of 80-octane gasoline, Navy Diesel oil, and Navy Special fuel oil.

Building of a 100-octane refinery started early in 1944. The new crude oil unit went into operation in November of the same year, and the alkylation unit and catalytic cracking plant in March and April of 1945 respectively. A construction force of 750 Americans and 4,000 Bahreinis was engaged on the project for a period of eighteen months. Bechtel-McCone of San Francisco were engaged to design a substantial portion of the equipment; Universal Oil Products Company of Chicago designed the fluid-type catalytic cracker and reformer, and Chemical Construction, the acid manufacturing and acid recovery plants. The final cost of the project, originally estimated at $18,430,000, amounted by June 1945 to over $27,650,000; it was financed by the RFC through its Defense Supplies Corporation.

The output of the plant consists at present of 100-octane gas, 67 to 80-octane motor fuels, illuminating kerosene, power kerosene, Diesel oils, and fuel oils. By the end of 1947 the refinery was processing crude oil at the rate of 145,000 barrels per calendar day, double the rate of 1945.

Since the crude oil production of Bahrein is about 30,000 barrels a day,[1] the refinery receives the rest, some 120,000

1. Daily average production for December 1949 was 30,310 bbls. against 29,986 bbls. in December 1948.

6:Faroughy H-5 (no date)1951 MZ2 Bahrain MZ2

barrels, from Saudi Arabian oil fields through a twelve inch, thirty-four mile pipeline. The pipeline, which was completed March 2, 1945, is under water for almost two-thirds of its length, (23.6 miles), making it the world's longest commercial submarine pipeline. During 1947 an additional twelve inch pipeline was hooked up to the portion on land bringing the total capacity to 126,000 barrels per day. To provide more flexible operations, a new 55,000 BPCD atmospheric crude unit is scheduled to be completed in the fall of 1950. However, an increase in throughout capacity (56,059,700 in 1949) is not anticipated.

At the end of 1947 the oil company employed 6,078 persons in the islands. The Bahreinis numbered 4,650, or 76.5% of the total. The rest were 11.6% British; 10.5% British subjects, Indians and Iraquis; and the remaining 1.4% Americans, Canadians, South Africans, and Europeans. Of the last, half were Italians.

The oil company pays to the Bahrein government a royalty of 3 rupees 8 annas plus 1 shilling per long ton. There is no taxation. The revenue which was to be returned to Bahrein from oil concessions amounted in 1945 to more than 26 lakh of rupees, or approximately $780,000, almost half of the total revenues of the Sheikdom.[1] For the year 1949, the amount of "oil royalties" was evaluated at $1,200,000. One-third of the royalties go to the Sheik and his family and the remaining two-thirds, to a fund held in London in the name of the Government of Bahrein.

In 1945 the Bahrein Petroleum Company estimated that its consolidated net profit for the year, after taxes and all other costs, would come to approximately $10,500,000. No dividends were declared during the year, earnings being applied to further expansion of operations. Profits in 1946 were estimated at $23,000,000. This was on a total investment of probably not more than 65 million U. S. dollars.

1. The total revenue of Bahrein amounted in 1944 to Rs. 55,90,000.

8: Qubain S-5 (1952-53) MZ2 Bahrain MZ2

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491
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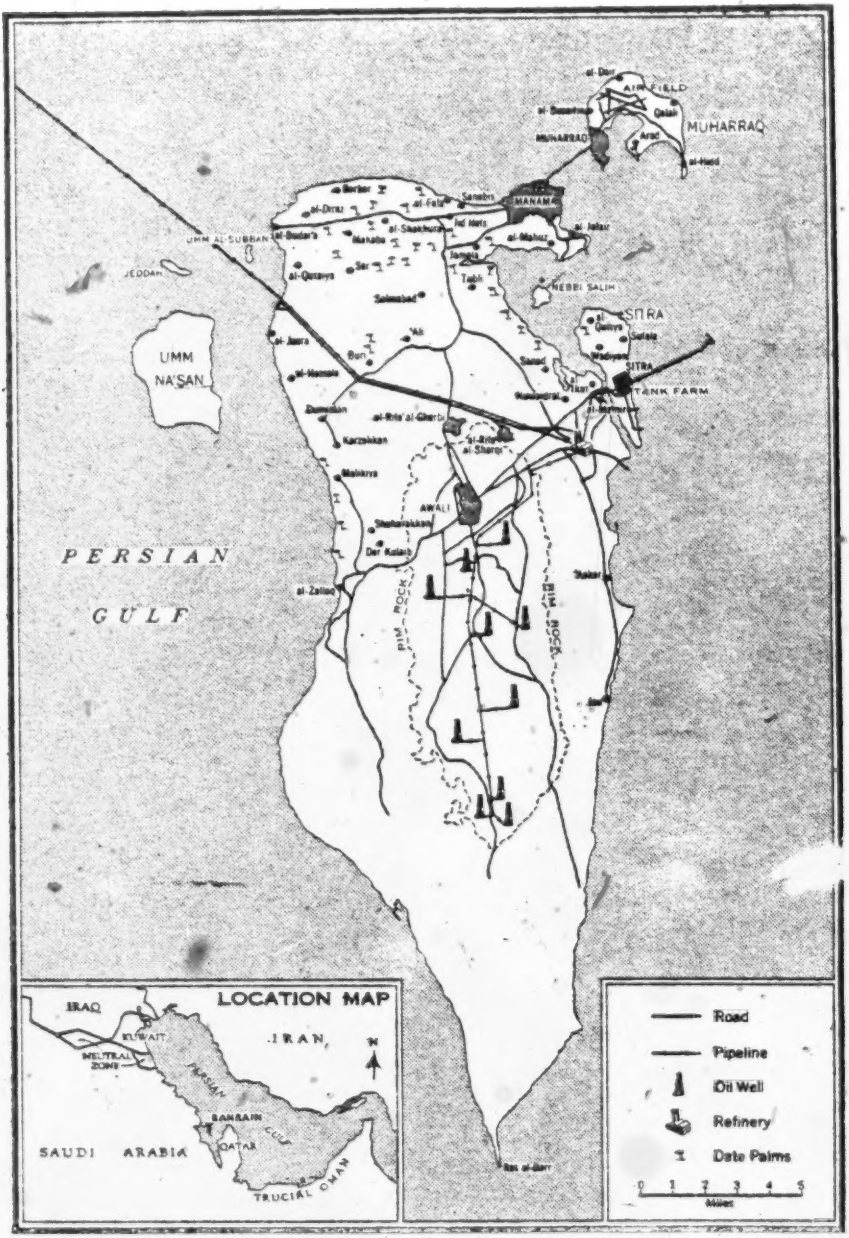

(See page 269)

The Shaykhdom of Bahrain

facing p. 239

3:Royal Institute of International Affairs U-4 (no date)1954 M1 Middle East
Bahrain M...

called 'Red Line' agreement of 1928,[1] was unable to agree to conditions that IPC was in a position to dictate; it therefore sold its option to the Standard Oil Company of California. After negotiations in which the British Government and the American State Department both took a hand, the Bahrain Petroleum Company (BAPCO), a subsidiary of Standard Oil, registered in Canada, was allowed to take up the concession provided that, to conform to Britain's prior agreements with the Shaikh, it employed a considerable number of British subjects. In 1936 the Texas Company acquired a 50 per cent interest in BAPCO. These details are given to explain why the present company is Canadian by nationality and American by management, and employs a large proportion of British staff. The two American companies concerned are two of the four participants in Aramco.

Oil was first discovered in Bahrain in 1932 and first exported in 1934. Production was suspended during the Second World War, but since then it has risen to a steady level of 11 million barrels per year. A refinery was erected before the war, and has (since the Abadan refinery ceased to put through its daily 550,000 barrels) been stepped up to a throughput of over 200,000 barrels per day; it includes a catalytic cracking unit for high octane fuel. It is fed both with BAPCO's own production of oil from the Bahrain field and by a 12-inch under-sea pipeline from Aramco's wells in Saudi Arabia. The jetty for loading tankers lies off Sitra Island on the seaward side of Bahrain Island itself.

Originally, the Shaikh enjoyed the same royalty rate as his neighbour in Kuwait—3 rupees and 4 annas a ton, or 14 cents a barrel. In 1951 reports of the new agreements reached by his neighbours caused him to ask for equality of treatment. In 1952, therefore, he signed a new agreement with the company which established the fifty-fifty profit-sharing arrangement now universal on the Gulf. He also enjoys a payment on each ton of Saudi Arabian oil passing through his territory to the refinery. His revenue has risen relatively less than that of his neighbours because the volume of oil produced in Bahrain has for some years been virtually stationary; nevertheless earnings from oil have risen from $1·4 million in 1948 to $3·8 million in 1951 and $6·3 million in 1952, and three-fourths of Bahrain's national income is now derived from petroleum activities. The social and economic changes brought about by this increased wealth are not so spectacular in Bahrain as elsewhere because

[1] See R. F. Mikesell and H. B. Chenery, *Arabian Oil* (Chapel Hill, University of N. Carolina Press, 1949).

THE COMPANY

refinery on the eastern side of the island, opposite Sitra. It was expanded in 1945, and 80 to 85 per cent of the crude oil processed is now obtained by pipeline from Saudi Arabia. The refined petroleum products are pumped to storage tanks on Sitra Island, and subsequently to a deep-water loading terminal 3 miles offshore. Over 6,000 Bahrainis, as well as some 1,600 British and Americans, are employed in different branches of the industry. Two thirds of the royalties accrue to the Bahrain government, half of which are utilized for capital expenditures designed to raise the standards of living of the people. Reports for 1951 indicate that 68 per cent of the government income was derived from oil revenues, as against 26 per cent from customs receipts.

The renewed prosperity of the islands and the concurrent growth in population have stimulated private enterprise and the growth of small factories to supply current needs, particularly as regards building materials. Fishing is an important seasonal occupation of many villagers, and preserved fish, fish oils and other fish products are items of export. Agriculture plays a minor role. Barely 5 to 10 per cent of the total land area is under cultivation, and further expansion is restricted by the nature of the terrain, the concentration of water supply in limited areas and a feudalistic system of land tenure. Date gardens flourish in oases on Bahrain, Muharraq and Sitra Islands, but the supply equals less than one quarter of the local requirements. The government is endeavoring to promote the introduction of other crops, and maintains an experiment station at Budaiya.

The sea approaches to the archipelago are shallow, making it necessary for ocean vessels and oil tankers to anchor 2 to 4 miles from the shore. Bahrain and Muharraq, however, have good harbors which accommodate dhows and other shallow-draft vessels. Manama is an active trading center: coastal traffic is more or less continuous, while frequent steamer services are available to the northern Gulf ports and to India AND PAKISTAN.

p. 257 (B)

64: Shwadran S-4 (no date) 1955 M1 Middle East

Bahrein MZ 2

315
382

p. 372

64: Shwadran S-4 (no date) 1955 M1 Middle East
Bahrein MZ2

Production

From 1936 production progressed rapidly, reaching the 20,000 barrel per day mark in 1939. During the years 1942-1944 some wells were shut in as a war measure, and production was reduced by some 2,000 barrels per day. By 1951 there were 67 producing wells, with an average per well output of 430 barrels per day. The following table gives production in tons and barrels:

Table XII. *Bahrein Oil Production 1933-1954*

Year	*In Tons*	*In Barrels*
1933	4,000	31,000
1934	39,008	285,000
1935	173,072	1,265,000
1936	635,555	4,645,000
1937	1,058,511	7,762,000
1938	1,138,000	8,298,000
1939	1,041,000	7,589,000
1940	971,000	7,074,000
1941	932,000	6,794,000
1942	856,000	6,241,000
1943	902,000	6,572,000
1944	921,000	6,714,000
1945	1,003,000	7,309,000
1946	1,099,000	8,010,000
1947	1,291,000	9,410,710
1948	1,496,000	10,915,000
1949	1,508,000	10,985,484
1950	1,512,000	11,016,000
1951	1,508,000	11,008,000
1952	1,510,000	11,004,000
1953	1,506,000	10,978,380
1954[10]	1,570,000	10,994,000[11]

and attempted to get a concession for the additional area. For suddenly, in the spring of 1937, the Sheikh halted all negotiations with Bapco for one year. "He finally granted it to the Bahrein Petroleum Company on June 19, 1940, but the British officials distilling the last drop of advantage that could be obtained hooked on a political agreement of June 29, 1940." DeGolyer, *loc. cit.*, 79. "The 'Bahrain unallotted area,' being the difference between the 100,000 acres and the whole extent of the Shaikh's dominions, was from 1934 to 1940 the subject of lengthy negotiations between the Shaikh, Bapco, and another candidate, the Iraq Petroleum Company." Longrigg, *Oil in the Middle East*, 104.

[10] United Nations, Department of Economic Affairs, *Review of Economic Conditions in the Middle East 1949-1950*, 60, henceforth cited U.N., *Review* or *Summary*, and year;—*Review 1951-1952*, 55;—*Summary 1952-1953*, 47; Economic Cooperation Administration, Special Mission to the United Kingdom, *The Sterling Area. An American Analysis*, (London, 1951), 418; *World Petroleum*, X, 43, July, 1939.

[11] United States Senate, *Petroleum Requirements—Postwar, Hearings Before A*

64: Shwadran S-4 (no date) 1955 M1 Middle East
Bahrein M22

The nature of the Bahrein islands as the commercial port of the Saudi Arabian coast and the Qatar peninsula made it an ideal location for a refinery, and as soon as oil was discovered in commercial quantities in Bahrein and the prospects for Saudi Arabia looked promising, Bapco built a refinery which went into operation in July, 1935. Increased production and the demand for oil for war needs made it necessary to expand the refinery and by 1945 the Company had spent about $27.5 million. By 1951 the refinery had a capacity of 155,000 barrels daily. Most of the crude came from the Saudi Arabian mainland as the maximum of local production was only 30,000 barrels per day. At first the oil was brought by tanker, later it came by way of a 12-inch 34-mile long pipeline, two-thirds of which was submarine. During 1947 another 12-inch pipeline was laid, bringing the total capacity of the pipeline to 126,000 barrels per day.[15] By 1949 about 85 per cent of the refinery's throughput was coming from Saudi Arabia. The output in 1950 was 56,059,000 barrels; in 1951, 8,040,000 tons; in 1952, 8,621,000 tons; and in 1953, 10,408,000 tons. It has been estimated that the parent companies have invested about $75 million in the Bahrein undertaking.[16]

Reserves

Of all the major oil-producing areas of the Middle East, Bahrein was the least promising as regards reserves. From the very beginning the reserve estimates were generally static. In January 1949 they were estimated as 170 million barrels; two years later Faroughy gave them as 200 million barrels; at the end of 1954 they were estimated at 235 million barrels. The United Nations experts estimated the reserves as 40,900,000 tons in 1951 and the same in 1953. Compared to Saudi Arabia and Kuwait, the Bahrein reserves are considered of little significance.[17]

Summary 1950-51, 37-38;—*Review 1951-52*, 58-59; "Oil and Social Change," *The Economist*, 3, July 2, 1955.

[15] For a Company description of the pipeline and the refinery, see "Submarine Pipeline," *Oil Lifestream of Progress*, III, 20, Oct., 1953.

[16] U.N., *Summary 1950-51*, 24; "Oil and Bahrein," *The World Today*, VII, 78, Feb., 1951; Sanger, *The Arabian Peninsula*, 145; Faroughy, *The Bahrein Islands*, 44-45; *Le Commerce du Levant*, Oct. 15, 1954.

[17] U. S. Senate, *International Petroleum Cartel*, 6; U.N., *Review 1951-52*, 53;—*Summary 1952-53*, 40; Faroughy, *The Bahrein Islands*, 111; *World Oil*, CXL, 205, Feb. 15, 1955.